A.2
9/8/86

CERRO COPPER PRODUCTS CO.
A member of The Marmon Group of companies
P.O. Box 681
East St. Louis, Illinois 62202
618/337-6000

153798

September 8, 1986

Dr. James Patterson
Patterson & Associates
1540 N. State Parkway, Unit 13-A
Chicago, IL 60610

Dear Jim:

Attached are drafts of the various documents we plan to submit to the EPA, pursuant to our conference call on September 2. These are intended to cover everything except flow data requested in Item 1 of Attachment 1 to EPA's July 29th letter to Dick Kissel.

In the wastewater schematics I have shown the billet saw as part of the metal molding and casting operations, however I believe that it would properly be classified as a copper forming operation. Since it is located in the same building and intimately associated with the melting and DC casting operations it seemed that this was the logical place to show it.

For the copper forming operations in the Tube Mill I had to use a different format because every attempt to diagram the operations with their associated flows resulted in an incomprehendable jumble of lines and boxes.

As you know we have flow diagrams for most of our operations that show far more detail than these, however they give much more information than I think we should provide at this point. Your comments and suggestions would be most appreciated. I plan to have the finished copies made by Sverdrup on their graphics display printer.

Very truly yours,

CERRO COPPER PRODUCTS CO.
A member of The Marmon Group
of companies

S. A. Silverstein
Manager of Energy and
Environmental Affairs

SAS/ge

cc: R. Kissel
P. Tandler
File

C07349

By SHS Date 9.5.96

Checked By _____ Date _____

# CEPRO COPPER PRODUCTS CO.

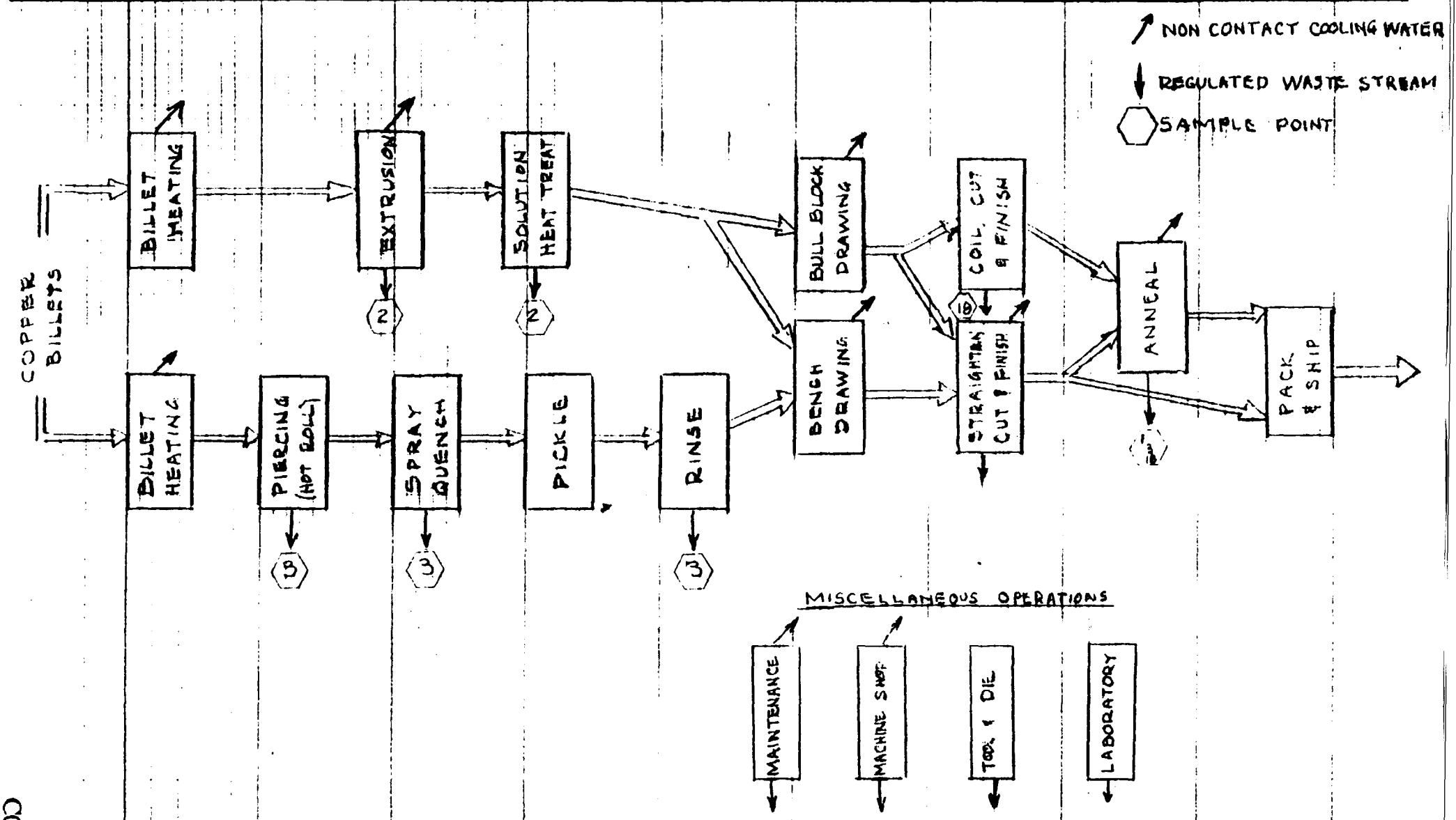
A member of The Marmon Group of companies

HO 2060 B

Dwg. No. _____

Title: WASTEWATER SCHEMATIC
TUBE MILL (COPPER FORMING)

Scale _____




C0735O

By _____ Date _____

Checked By _____ Date _____

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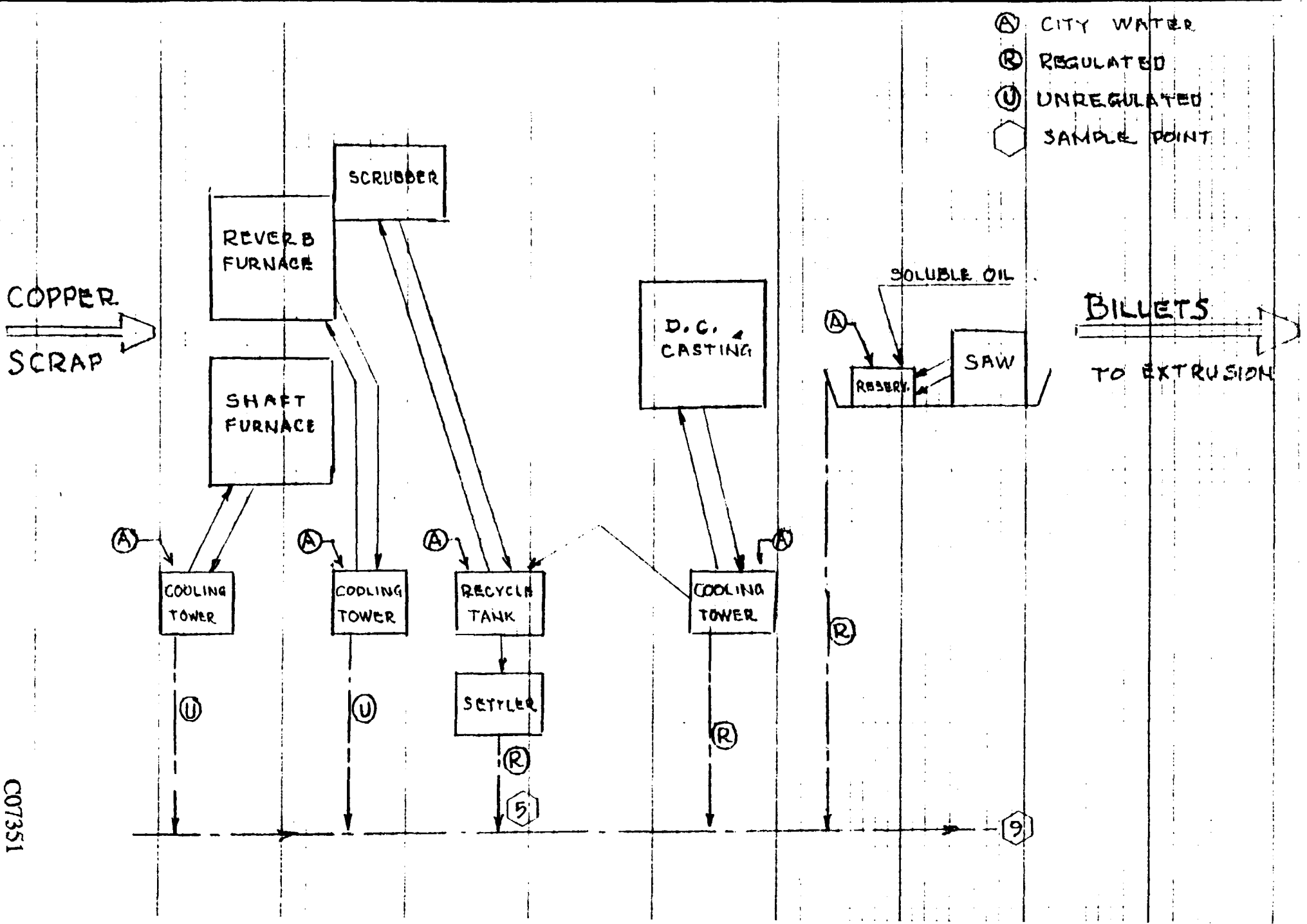
Dwg. No. _____

Title: WASTEWATER SCHEMATIC

BILLET CASTING DEPT. (METAL MOLDING & CASTING)

Scale _____




C07351

By _____ Date _____

Checked By _____ Date _____

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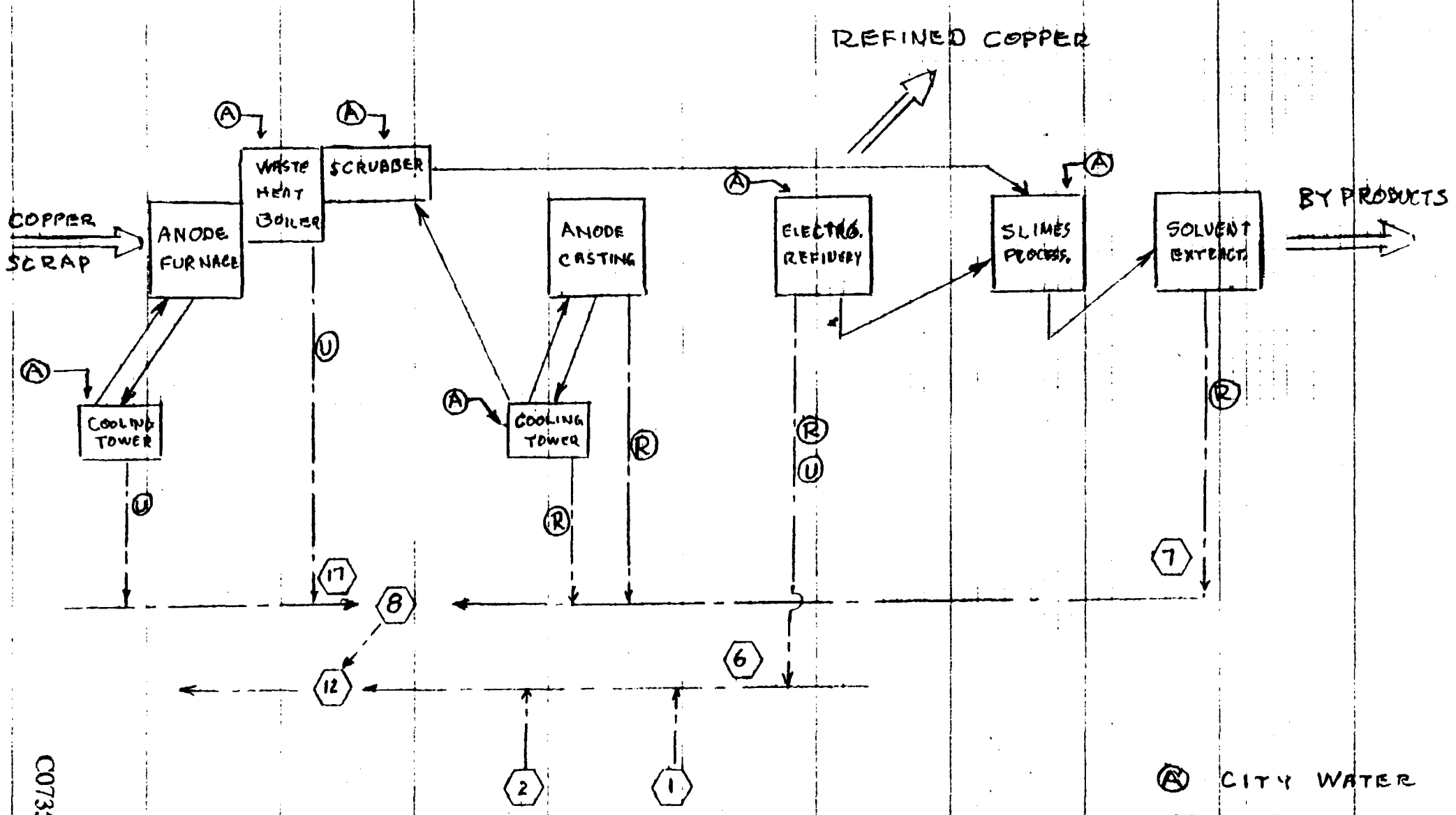
Dwg. No. _____

Title: WASTE WATER SCHEMATIC

REFINERY (NON-FERROUS METALS)

Scale _____




A CITY WATER

R REGULATED

U UNREGULATED

SAMPLE POINT

C07352

# DESCRIPTION OF OPERATIONS

The Cerro Copper Products Co. plant is located on an approximately 64 acre site in the Village of Sauget, Illinois. Plant operations are generally identified in three separate classifications: Casting, electrolytic refining, and fabrication. Plant products are electrolyte copper cathode and copper tubing. Employment is in the range of 750.

The casting operations are carried out in three furnaces, two of which are reverberatory type and the third is an Asarco shaft furnace. One of the reverberatory furnaces, called an Anode Furnace, is charged with high grade copper scrap, melted in the furnace, fire refined and cast into a shape to serve as anodes for the electrolytic refinery. The furnace has a nominal capacity of 250 tons and normally operates on a five day per week schedule.

The other reverberatory furnace and the shaft furnace both feed a pair of semi-continuous casting machines in which copper is cast into 12-1/2" diameter logs, 35' in length. The logs are subsequently cut into 25" lengths as billets for the extrusion operation in the Tube Mill. The reverberatory furnace which feeds the billet casting operation has a nominal capacity of 250 tons and is charged with high grade copper scrap, blister copper, and similar quality material which is suitable for fire refining to yield metal of a quality suitable for tube production. The shaft furnace feeding the billet casting operation is a continuous melting device with a through-put rating of 30 tons per hour; it is charged with cathode copper and the equivalent quality scrap.

The electrolytic refinery has a nominal capacity of 44,000 tons per year. The refiner has 580 plating cells connected in series and supplied by a 10,000 amp silicon rectifier unit. Copper anodes are placed in the cells alternately with copper starting sheets along with an electrolyte solution which is basically 10% sulphuric acid. The electrolyte solution is continuously recirculated through the cells from a reservoir which contains stainless steel steam coils which are used to maintain the proper temperature of the electrolyte. Copper from the anode is plated onto the starting sheet and after a 14-day cycle the sheets are removed as completed copper cathode. Impurities contained in the anode drop to the bottom of the cell during the plating operation and collect there as slimes. Periodically the slimes are pumped from the cells to a processing area where they are prepared for shipment to outside resources for further refinement.

Tube Mill operations begin with an extrusion operation wherein copper billets are heated and extruded in a 5750-ton hydraulic press which transforms the billet into a tube approximately 3" diameter by 220' long. The tubes are then reduced in diameter and wall thickness by a series of drawing operations until the desired size is attained. The drawing operations are performed on a series of bull blocks which are powered capstans with a gripper which engages the end of the tube and pulls it through a die and over a floating mandrel, thereby reducing both diameter and wall thickness in a prescribed manner. When the tube is drawn to the required size, it is then processed to either straight length or coil form preparatory to shipment. For straight lengths, the coils of tube are passed through a multi-roll straightener, electronically tested for defects, identification marked with size, type and manufacturer's name, and cut to prescribed lengths. Straight lengths are bundled in uniform quantities and delivered to storage awaiting shipment as required.

Tubing which is to be shipped in the form of annealed coils is processed through a group of tube coilers which forms the tube into the required pattern, electronically tests for defects and cuts off the prescribed length. Coils thus prepared are processed through one of several roller hearth annealing furnaces from which they are individually packaged in cartons preparatory to shipment.

PRODUCTION (MILLIONS OF POUNDS)

| | OPERATION | PRODUCTION RATE LBS/DAY | NCPS SUBPART | SIC CODE | 1981 | 1982 | 1983 | 1984 | 1985 | (SOURCE) |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | REVERB BILLET FURN | 440 000 | METAL MELTING & CASTING | 3351 | 85.8 | 79.9 | 108.0 | 110.7 | 115.1 | CNGD WT per Newsletter |
| 4 | BILLET CASTING | 600 000 | " | | 170.3 | 160.8 | 196.6 | 222.0 | 226.2 | SAWING + 10% |
| 6 | BILLET SAWING | 600 000 | " | | 154.8 | 146.2 | 178.7 | 201.8 | 205.6 | FOLLOWS 5 YR SUMMARY |
| 11 | EXTRUSION | 900 000 | COPPER FORMING | 3351 | 134.0 | 146.3 | 176.0 | 202.3 | 204.6 | IND ENGR |
| 13 | PIERCING PICKLING, RINSE | 100 000 | | | .69 | .83 | 1.27 | 1.32 | 1.61 | IND ENGR |
| 16 | COLD DRAWING | 850 000 | | | | | | | | |
| 17 | FINISHING | 800 000 | | | 125.4 | 120.2 | 146.5 | 168.1 | 167.0 | TOTAL TUBE PRODUCTION |
| 20 | ANNEALING | 800 000 | | | | | | | | |
| 26 | ANODE FURNACE | 580,000 | NON FERROUS METAL | 3331 | 122.0 | 112.0 | 112.0 | 113.1 | 137.1 | CNGD WT PER NEWSLETTER |
| 28 | ANODE CASTING | 535,000 | | | 111.9 | 112.0 | 101.1 | 103.3 | 124.5 | NEWSLETTER |
| 30 | ELECTROLYTIC REFINING | 300,000 | | | 94.9 | 91.5 | 86.9 | 83.9 | 95.9 | " |
| 32 | SLIMES PROCESSING | 1500 | | | .44 | .52 | .42 | .40 | .43 | " |
| 36 | METAL RECEIVING | | | | 198.3 | 187.2 | 189.7 | 223.9 | 229.0 | FDRY - 5 YR SUMMARY |
| 38 | BRICKING | | | | 142.9 | 149.8 | 159.4 | 183.7 | 173.5 | " |

C07355

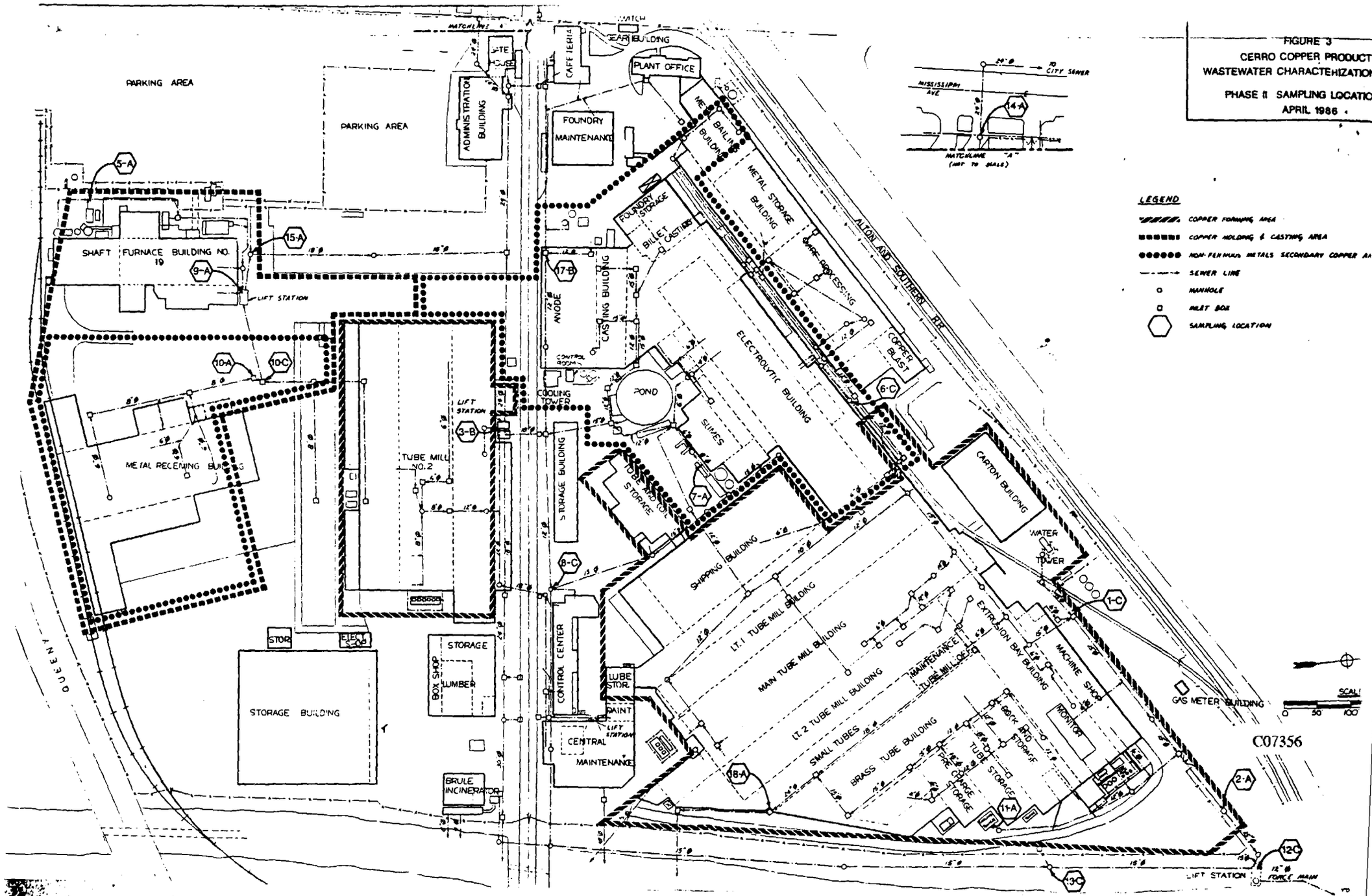


FIGURE 3
CERRO COPPER PRODUCTS
WASTEWATER CHARACTERIZATION
PHASE II SAMPLING LOCATIONS
APRIL 1986
LEGEND
COPPER FORMING AREA
COPPER MELTING & CASTING AREA
NON-FERROUS METALS SECONDARY COPPER AREA
SEWER LINE
MANHOLE
INLET BOX
SAMPLING LOCATION
PARKING AREA
PARKING AREA
ADMINISTRATION BUILDING
FOUNDRY MAINTENANCE
PLANT OFFICE
CAFETERIA
GUARD HOUSE
MATCHLINE
MATCHLINE "A"
(NOT TO SCALE)
TO CITY SEWER
MISSISSIPPI AVE
METAL BUILDING
METAL STORAGE BUILDING
ALTON AND SOUTHERN RR
FOUNDRY STORAGE
BILLET CASTING
SHAFT FURNACE BUILDING NO. 19
LIFT STATION
ANODE
CASTING BUILDING
SCRAP PROCESSING
COPPER BLAST
ELECTROLYTIC BUILDING
CONTROL ROOM
COOLING TOWER
POND
SLIMES
TUBE MILL NO. 2
METAL RECEIVING BUILDING
TUBE AND ROD STORAGE
STORAGE BUILDING
STORAGE
BOX SHOP
LUMBER
CONTROL CENTER
LUBE STOR.
PAINT
CENTRAL MAINTENANCE
BRULE INCINERATOR
SHIPPING BUILDING
LT. 1 TUBE MILL BUILDING
MAIN TUBE MILL BUILDING
LT. 2 TUBE MILL BUILDING
SMALL TUBES
BRASS TUBE BUILDING
MAINTENANCE
TUBE MILL OFFICE
EXTRUSION BAY BUILDING
MACHINE SHOP
MONITOR
PIPE CHARGE STORAGE
TUBE STORAGE
BACK END STORAGE
CARTON BUILDING
WATER TOWER
GAS METER BUILDING
LIFT STATION
12" FORCE MAIN
TO
QUEEN
SCALE
0 50 100
C07356